

## CLAIMS

What is claimed is:

1. A method for counteracting a transmission line parasitic element discontinuity, comprising:

determining a value of a parasitic element, be it a capacitive or an inductive parasitic element, that exists at a portion of a signal transmission line which has an impedance;

10 calculating a delay associated with a correction impedance of a correction transmission line that, based at least in part on the parasitic element value and the correction impedance of the correction transmission line, is operative to increase the signal transmission line impedance if the parasitic element is capacitive and to decrease the signal transmission line impedance if the parasitic element is inductive; and

15 adding the correction transmission line to the portion of the signal transmission line at which the parasitic element exists.

2. The method of claim 1, wherein the correction transmission line is divided equally and each half-part thereof is applied to the signal transmission line.

20 3. The method of claim 2, wherein the half-parts of the correction transmission line are added one before and one after the parasitic element.

4. The method of claim 1, wherein the added correction transmission line counteracts the effects of the parasitic element.

25 5. The method of claim 1, wherein the correction transmission line causes the impedance of the correction transmission line to match the impedance of the signal transmission line.

30 6. The method of claim 1, wherein the parasitic element includes a via.

7. A method for enhancing the signal transmission characteristics of a signal transmission line, comprising:

determining a value of a parasitic element, be it a capacitive or an inductive parasitic element, that exists at a portion of a signal transmission line which has an impedance;

5 calculating a delay associated with a correction impedance of a correction transmission line that, based at least in part on the parasitic element value and the correction impedance of the correction transmission line, is operative to increase the signal transmission line impedance if the parasitic element is capacitive and to decrease the signal transmission line impedance if the parasitic element is inductive;

10 equally dividing the correction transmission line into two halves; and

15 adding the two halves of the correction transmission line to the portion of the signal transmission line at which the parasitic element exists, wherein one half is added before and the other half is added after the parasitic element.

8. A method for enhancing the signal transmission characteristics of a signal transmission line, comprising:

determining an intrinsic capacitance of a parasitic element that exists at a discontinuity portion of a signal transmission line which has an impedance;

20 calculating a delay associated with a correction impedance that, based at least in part on the intrinsic capacitance and the correction impedance, is operative to increase the signal transmission line impedance; and

25 adding the correction impedance to the signal transmission line so that one half of the calculated delay is added before and the other half of the calculated delay is added after the portion of the signal transmission line at which the parasitic element exists.

9. A method for enhancing the signal transmission characteristics of a signal transmission line, comprising:

30 determining an intrinsic inductance of a parasitic element that exists at a discontinuity portion of a signal transmission line which has an impedance;

calculating a delay associated with a correction impedance that, based at least in part on the intrinsic inductance and the correction impedance, is operative to decrease the signal transmission line impedance; and

5 adding the correction impedance to the signal transmission line so that one half of the calculated delay is added before and the other half of the calculated delay is added after the portion of the signal transmission line at which the parasitic element exists.

10. The method of claim 8, wherein the correction impedance comprises an inductance that is placed before and after the parasitic element.

11. A method for enhancing the signal transmission characteristics of a signal transmission line, comprising the steps of:

determining the electrical characteristics of signal paths along the signal transmission line; and

5 adjusting the dimensions of the signal paths in order to cancel unwanted electrical characteristics of the signal transmission line.

12. The method of claim 11, wherein the length and width of the signal paths are adjusted.

20 13. The method of claim 12, wherein adjusting the length and width of the signal paths modifies the reactance of the signal transmission line.

14. The method of claim 11 further including the step of adding buddy traces adjacent to the signal paths in order to reduce electrical crosstalk

25 15. The method of claim 12 wherein the length and width of each of the signal paths can be adjusted before and after a portion of that signal path at which a parasitic element is present.

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